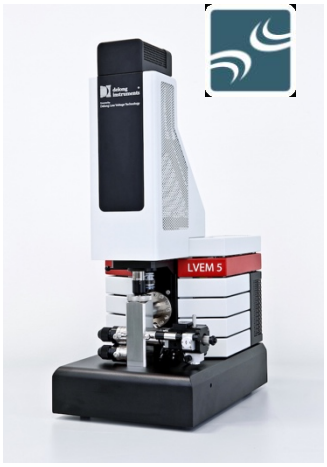
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# Certificate of Uniqueness




The LVEM5 electron microscope from Delong represents a radical departure from traditional electron microscopes in terms of architecture/design, functionality and practicality.

**In the United States, the LVEM5 is only commercially available from Delong America.**

The following technical specifications are entirely unique to the LVEM5 and are not found on any other commercially available electron microscope.

**The LVEM5 is the only commercially available electron microscope offering;**

## 5kv Operating voltage

**The LVEM5 electron microscope is the only electron microscope with the technology to operate at 5kv. These technologies include, but are not limited to, specially designed field emission gun, Ion pumps and permanent magnet lenses. This key technology, not available anywhere else, is what allows for all the following unique features of the instrument.**

### 1. Simplified Multi-modal imaging

Only the LVEM5 can switch effortlessly via software between TEM, SEM, STEM and ED modes. This allows for observation of ultra-structure, surface detail and diffraction patterns without moving the sample and without any realignment.

### 2. Benchtop TEM Imaging

The LVEM5 is the only benchtop electron microscope able to operate in TEM mode. Other benchtop electron microscopes can only image in SEM mode. The LVEM5's dimensions are ~ 1' wide by ~ 1 ½' deep by ~ 1 ½' tall. Other instruments capable of operating in TEM mode are much larger, on average ~ 7' wide by ~ 4' deep by ~ 7' tall

### 3. Resolution

The LVEM5 is the only benchtop electron microscope capable of resolutions of 4nm in SEM mode and 1.2nm in TEM mode.

### 4. Ultra High TEM Contrast

The LVEM5 is unique in its TEM imaging capabilities. As it operates at a much lower (5 kV) accelerating electron beam voltage than used by traditional TEM, there is much greater beam-sample interaction (i.e; electron scattering). This produces images that are much higher in contrast; the contrast from a 5 kV beam is 10 times * greater than that of a 100 kV beam. This feature reveals details in natural-state (i.e.; unstained) samples that *cannot be observed* via traditional EM. The LVEM5 is the only TEM designed to work optimally at this contrast-enhancing 5 kV accelerating voltage.

** results based on a standard test sample of a 20nm. thick carbon film*

E. Shizgal , April 1st, 2019

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